

ABSTRACT

A switching power supply circuit which can achieve enhancement of the power conversion efficiency is disclosed. In a composite resonance converter wherein a current resonance type converter constructed on the primary side and a primary side partial voltage resonance circuit are combined, a primary side DC input rectification circuit is formed from a full-wave rectification circuit. Further, a gap G of the core of an insulating converter transformer (PIT) is set to 2.0 mm to set the coupling coefficient of the primary winding (N_1) and the secondary winding (N_2) to approximately 0.81 of a loose coupling state. Further, the numbers of turns of the primary winding (N_1) and the secondary winding (N_2) are selected so that the induced voltage per one turn of the secondary winding (N_2) is 2 V or less. With the configuration, if the leakage inductance (L_{11}) of the primary winding (N_1) and the leakage inductance (L_{21}) of the secondary winding (N_2) are increased, then reduction of the primary side current (I_1) in a light load condition can be achieved and the switching output current (I_{Q1}), (I_{Q2}) can be reduced.